



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OPP OFFICIAL RECORD  
HEALTH EFFECTS DIVISION  
SCIENTIFIC DATA REVIEWS  
EPA SERIES 361

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM

DATE: 07-APR-2000

SUBJECT: HED Metabolism Assessment Review Committee (MARC) Meeting  
of 2/22/00. **Prohexadione-Calcium**. PP#8F04941. Chemical  
No. 112600. Barcode D263502. Case 289440. Submission  
S543993.

FROM: George F. Kramer, Ph.D., Chemist *George Kramer*  
Jessica Kidwell, Environmental Protection Specialist *Jessica Kidwell*  
RAB1/HED (7509C)

THRU: Melba S. Morrow, Branch Senior Scientist *M. Morrow*  
RAB1/HED (7509C)

and

Christine Olinger, Chair  
HED MARC

TO: George F. Kramer, Ph.D., Executive Secretary  
HED MARC

**A. Material Reviewed**

The MARC reviewed and discussed the material in the 2/14/00  
Issues memo of George Kramer and Jessica Kidwell including the  
results of the plant metabolism (apples and peanuts), livestock  
metabolism (ruminant and poultry), rat metabolism, rotational crop,  
analytical methodology, and magnitude of the residue studies for  
the new plant growth regulator, prohexadione-calcium (calcium 3-  
oxido-5-oxo-4-propionylcyclohex-3-enecarboxylate).

## B. Conclusions

The MARC concluded that only the parent compound needs to be included in the tolerance expression for pome fruit and peanuts and is the only compound included in the dietary and drinking water risk assessments.

The MARC used the following considerations/facts in supporting the conclusions drawn above:

- In the peanut, ruminant, rat, and poultry metabolism studies; the parent compound was the major component of the residue.
- The metabolite BX 112-I5 was the primary metabolite identified in the apple metabolism study. However, residues of BX 112-I5 were less than the LOQ (<0.05 ppm) in all treated samples of apple and pear harvested 45 days following treatment at 1x the maximum proposed seasonal application rate in the crop field trials while residues of prohexadione-calcium were <0.05-2.631 ppm in/on apples and 0.23-0.99 ppm in/on pears.
- Data provided by EFED show that prohexadione calcium degrades to despropionyl prohexadione which degrades further into tricarballic acid and citric acid, two naturally occurring substances. The two acids are subsequently mineralized to CO<sub>2</sub>.

The MARC further concluded:

- Based on their structural similarity to the parent compound, the following metabolites are considered to have equivalent toxicity to prohexadione-calcium: BX 112-I5, BX 112-M10, despropionyl prohexadione, 27F2-B, 25F1-A, and 27F2-A.
- Additional metabolism data will be required for any new use in addition to pome fruit and peanuts. If any of the aforementioned metabolites comprise a significant portion of the residue, then HED may request that the petitioner provide field residue data for such metabolites.

## C. Individuals in Attendance

### 1. MARC Members

George Kramer, Leung Cheng, Alberto Protzel, Nancy Dodd, Kit Farwell, William Wassell, Sanjivani Diwan, Chris Olinger

2. MARC Members in Absentia

John Doherty

3. Scientists (non-MARC members)

Jessica Kidwell, Iwona L. Maher

4. Scientists in Absentia (non-MARC members)

none

cc: PP# 8F04941, G. Kramer (RAB1), J. Kidwell (RAB1), HED MARC file (G. Kramer),  
Cynthia Giles-Parker (RD), Francis Griffith (BEAD-7503C)  
RDI: M. Morrow (3/6/00), RAB1 Chemistry Team (3/2/00)  
G.F. Kramer:806T:CM#2:(703)305-5079:7509C:RAB1